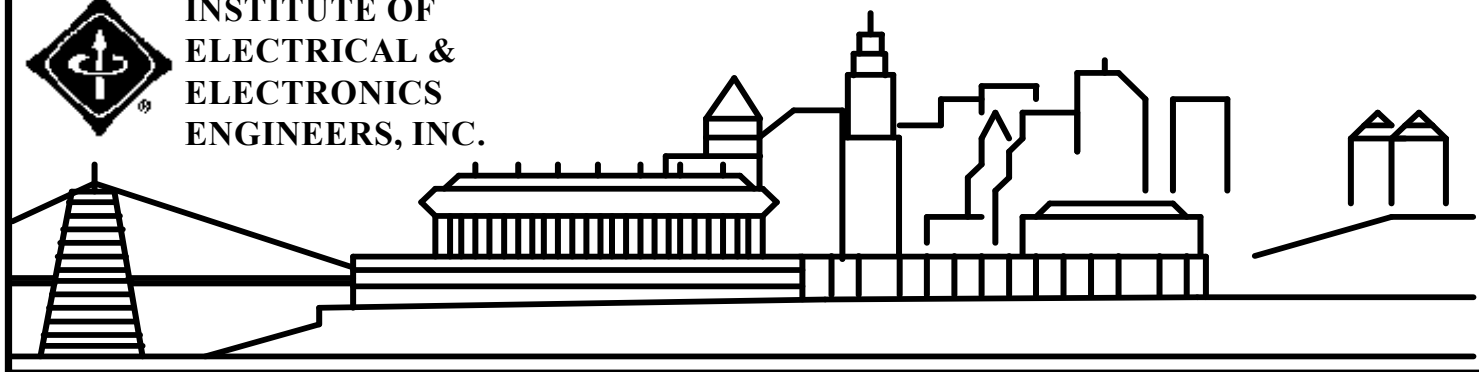




**INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.**



SEPTEMBER 1994

IEEE CINCINNATI SECTION NEWSLETTER

SEPTEMBER MEETING: Tour of The Dayton Power and Light Energy Resource Center

DATE: THURSDAY, SEPTEMBER 22, 1994

PLACE: The Dayton Power and Light Energy Resource Center

TIME: 7:00 P.M. (Promptly!!!)

Attendance is limited to 50 people!!!
For reservations, please call Dee Scott at
459-8038 by NOON, Wed. September 21

Please provide NAME, MEMBER # and
COMPANY NAME when making reservations

ABOUT THE PRESENTATION

This month's tour features the Dayton Power and Light Energy Resource Center, in Dayton, Ohio. The DP&L Energy Resource Center is the only one of its kind in Ohio. Currently, the center is the home of more than twenty energy saving programs. This state-of-the-art facility includes a Lighting Center, a Business Technology Center, a Residential Technology Center and a Resource Library. Each center is designed to provide valuable information on the fast-changing world of energy technology. The tour is designed to spend time in the Center's three technology facilities, energy workshop, and comprehensive resource library. The center is located at 3931 South Dixie Drive in Dayton, OH. Take I-75 North out of Cincinnati.

CHAIRMAN'S MESSAGE

by Jim Everly

Welcome back! I hope that everyone had a safe and enjoyable summer. My summer was spent with my youngest teenage son riding our bicycles. To date we have logged over 1500 miles since April of this year. Our longest ride was 505 miles across the state of Iowa during the last week in July. I can personally testify that Iowa is not flat, and that it gets hot and humid during July. Fortunately, the hot and humid weather that characterizes Cincinnati during the summer is about over, the kids are back in school and it's time to start our fall program

schedule. The September meeting is normally a tour and this month we have an opportunity to visit The Dayton Power & Light Energy Resource Center.

Also, the Fall Quarter meeting of the Cincinnati Section Executive Committee is scheduled for Thursday, September 1, 1994. The committee is aggressively seeking a person to fill the Executive Committee slot of Program Chairman. Requirements for this position will most likely be posted in next month's Newsletter. If you think you might be interested in the position, give me a call. The committee is also concerned about the form and content of our monthly Newsletter. Let me hear from you if you have any comments relevant to "the needs of the membership" that can be satisfied by the Newsletter.

FM Radio Finds Its Niche
by R. J. Reiman, Historian

World War II research had raised issues of interference from sky waves in the 42 to 50MHz band which had been previously assigned. The catalyst for the dispute over this allocation and an advocate to move the range to higher frequencies was an FCC engineer, Kenneth Norton. During the war, he served in a capacity which made him knowledgeable of the experimental programs in the sky-wave propagation of VHF signals. He combined the War Department results with data obtained from the Bureau of Standards, and from measurements obtained on a commercial FM station, WGTR in Paxton, Massachusetts, to develop new predictions of VHF sky-wave transmission. He calculated the amount of co-channel interference in the 42 to 50MHz band. He concluded that objectional interference would occur, especially in rural areas, at the extreme end of the broadcast range.

The FCC took his report seriously, held a hearing in late 1944, and resisted the arguments of the industry, especially those with established stations. Also at risk were 400,000 receivers in public hands which would become obsolete. Norton assumed that the broadcast signal must be ten times as strong as the interfering signal, and Howard Armstrong countered that a 2 to 1 ratio was more appropriate as wideband FM had a unique ability to override interference. FM industry did not challenge this assumption strongly and Norton's calculations were then not challenged.

On May 9, 1945, the FCC issued an order to raise the band for FM to 84 to 102MHz frequency range. Just two days earlier, the War Production Board announced the plan to permit the manufacturing of radio receivers. The manufacturers of the 42 to 50MHz equipment, owners of sets, and in particular Zenith, a leader in the band, had lost a profitable edge, and owned obsolete equipment. The FCC ruling also included specifications on channel widths, power, antenna height and frequency assignments. Three classes of stations were established, local stations with maximum radiated power of 50KW, regional with 50, and 100KW.

FM receiver design world progress was delayed until technical improvements were made in receiver tuning and drift, and popularity of FM awaited lower costs, more popular programs and innovations in transistor technology. Not until 1957 would FM become a popular choice.

AM/FM receivers became standard equipment in new cars, station broadcasts were reduced and a new demand for higher fidelity came from the devotees of "Rock and Roll" music. All this led to more FM stations on the air, more receivers sold, and in 1980, FM listening share shifted from AM to FM. Also, following the war, was the dramatic rise of television. Howard Armstrong did not live to see the success of FM, but history has justified his inventive genius and vision.

NEW MEMBERS

The following individuals are new IEEE Members in the Cincinnati Section:

John M. Beighle	James A. Bellas
David G. Buffington	Chris S. Burkey
Phillip R. Cluxton	Bradford Cobb
Robert J. Donovan	Paul G. Dunaway
James M. Eichstadt	Steven M. Ertel
Mike Finegan	Richard Fiutem
Art Gorman	Jeffrey P. Gunderson
Gregory A. Hansen	James Hoffman
Mark P. Horujko	Vincenzo N. Iannacci
Michael W. Jordan	Kevin L. Kelch
Stephen E. Lord	Jacques Mahnich
Marilyn Martin	Lawrence J. Mazlack
Annette M. Miller	Sidhartha Mohanty
Gary Monroe	Nick Palassis
Charles F. Peck	Diane M. Posson
Alan E. Rogers	Robert B. Schulte
Scott E. Sloan	Patrick J. Steinhofner
Michael Sumner	Helena L. Weeks
Jeffery M. Weaver	Robert N. Wood
Jason Xu	

The following IEEE members have moved into the Cincinnati Section:

R. H. Black	Benjamin B. Lee
Ralph D. Campbell	Richard Marchant
William L. Collins, Jr.	Carl E. North
Guillermo Cremer	Kathleen C. Nun
David W. Evans	N. S. Reddy
Jason P. Fritz	Mark H. Saunier
David B. Halten	Lakshmi S. Tummala
Scott K. Holland	Brian A. Webb
Russell K. Hunter	David A. Wickelhaus
Ari M. Huostila	David W. Willman
Joel C. Idzkowski	

IEEE NEWS

IEEE VIDEOCONFERENCES PROVIDE OPPORTUNITY TO EARN GRADUATE SCHOOL CREDIT

PISCATAWAY, N.J., July 28--Engineers can now earn graduate school credit by viewing four fall videoconferences offered in October and November presented by IEEE and then developing a five to 10 page

research paper on one of the conference topics. The course is being offered through the College of Engineering of California State University at Long Beach. Participants do not have to be enrolled in a graduate school.

The material in the videoconference is presented by experts from leading corporations and institutions in the fields of engineering, computers and electronics. All programs will be broadcast live via satellite through an interactive network using one-way video and two-way audio, and can be seen October 5 and 19, and November 19 and 30, throughout the U.S. at various sites.

The course credit can be transferred to any graduate school, depending on the school's requirements. To register for the course, "CECS 697 Directed Research," call 1-800-963-2250 at the University. A registration form will be included with the fall videoconference notes, which can be obtained by calling the IEEE Continuing Education Department (Dr. Robert Kahrman, 908-562-5491 or Carolyn Yankoski, 908-562-5493). The price for the course is \$250 and can be paid by credit card or check. The fee to view the videoconference programs is additional and varies depending on the site.

Engineers can view the four videoconferences on tape and earn the graduate credit by registering with California State University by October 30 and fulfilling the course requirements. These tapes will be available for purchase beginning in November 1994. The price for each tape will be \$325 for IEEE members and \$395 for non-members.

WASHINGTON, Aug. 3--In August 1994, the U.S. Infobahn became a road connecting engineers with job opportunities all across the nation when the IEEE announced an innovative electronic job-listing service designed to give IEEE members access to up-to-date information on employment openings.

For a nominal handling fee, employers of engineers and placement services can list job openings on the Internet via regional or national autoresponse files posted by IEEE-USA -- which are accessible at no cost by IEEE members.

IEEE-USA's Employment Assistance Committee developed the new service to assist record numbers of unemployed members as well as those seeking career advancement. According to IEEE-USA Chairman Jean Eason, "A recent Institute survey revealed that 75% of our U.S. members either have access to the Internet, or will be connected within one year. We believe the information superhighway can be a very effective medium to increase job-seekers' opportunities without imposing an additional financial burden".

The service is designed for easy use by both employers and job-seekers. Employers, placement agencies and recruiters simply submit a form -- which can be obtained and returned via diskette, fax or mail -- listing specifics for each opening along with a nominal handling fee of \$10 per listing for employers, and \$15 for placement services and recruiters. IEEE-USA will process and post listings on the Internet, by state, in any of six regional autoresponse files. A seventh file will include nationwide and outside the United States.

To gain access, job-seekers send an e-mail message to designated Internet addresses. Job listings will be continuously updated, and remain posted for 30 days, unless specified otherwise by the employer.

The following auto-response files have been established: for Region 1, info.ieeeusa.jobs.r01

@ieee.org; for Region 2, info.ieeeusa.jobs.r02

@ieee.org; for Region 3, info.ieeeusa.jobs.r03

@ieee.org; for Region 4, info.ieeeusa.jobs.r04

@ieee.org; for Region 5, info.ieeeusa.jobs.r05

@ieee.org; for Region 6, info.ieeeusa.jobs.r06

@ieee.org; and for nationwide and outside the U.S., info.ieeeusa.jobs.other@ieee.org. IEEE members who do not have Internet access can obtain files through their local Section officers, PACE representatives or Student Branch officers.

For more information on the new service, or for employer job-listing forms, contact William R. Anderson of IEEE-USA at 1828 L Street, NW, Suite 1202, Washington, D.C. 20036, 202-785-0017 (telephone), 202-785-0835 (fax) or w.anderson@ieee.org (e-mail).

WORKSHOP ON MICROWAVE TECHNOLOGY - 2000 AND BEYOND

Aim: To provide an in-depth overview of some of the major commercial application areas in Microwave Technology, to learn the state of the art capabilities of defense technology and to simulate new commercial application areas that can use this technology. It will also provide a forum for presenting our present work in related areas.

When: September 29-30, 1994.

Place: University of Cincinnati, 402 Tangeman Center, Cincinnati, Ohio.

Organized by: Ohio Aerospace Institute, Microwave Technology Technet. **Participating Organizations:** IEEE Cincinnati, Dayton & Cleveland Sections, University of Cincinnati.

Invited Lecturers: Experts are invited to give presentations on some of the important emerging application areas related to microwave technology.

Program:

September 29, 1994:

9:00-11:00 Invited Talks

- Microwave and Millimeter Wave Development at NASA LeRC (G.E. Ponchak).
- Cellular Communication Systems (P. Odlynsko, Motorola)
- Microwave and Millimetric Wave Photonic Technology (B. Hendrickson, ARPA, Rome Lab)

12:00-1:00 p.m. Lunch

1:00-3:00 Invited Talks

- Microwave Integrated Circuit Technology (M. Calcaterra, WPAFB)
- Industrial Applications of Microwaves (A. M. Ferendeci, UC)

3:00-5:00 Contributed Papers

September 30, 1994

9:00-12:00 Invited Talks

- Microwave Applications in Medicine (L. Taylor, Univ. MD)
- Technology Transfer To and From Radar (M. Skolnik, NRL)
- Intelligent Vehicle Highway Systems (R. Dixit, TRW)

12:00-1:00 p.m. Lunch

1:00-3:30 Panel Discussion

Microwave Technology: Defense to Industry Transition.

Moderator: D. Connolly, NASA LeRC.

Registration: In advance. Proceedings will be available at the Workshop.

For further information, contact:

Altan M. Ferendeci
Univ. of Cincinnati
(513) 556-4759
aferende@uceng.uc.edu

Denis J. Connolly
NASA LeRC
(216) 433-3503

Mike Knasel
OAI
(216) 962-3040

Dee Scott (call for meeting reservations)	385-9446
Jim Everly - Chairman	777-7129 (Home)
	556-4224 (Fax)
	556-4241 (Office)
Steve Olenick - Vice Chairman	573-6555
Orest Melnyk - Treasurer	565-2549
Mark Reineck - Secretary	753-6290
Bob Morrison - Editor	287-3697 (Office); 287-3698 (Fax)

SEPTEMBER 1994

IEEE CINCINNATI SECTION NEWSLETTER



**The Institute of Electrical and
Electronics Engineers, Inc.
C/O Dee Scott
7780 Hackney Circle
Maineville, Ohio 45039**

DATED MATERIAL
Please deliver promptly